

Naloxone: Overview, Criminal Justice and other Special Settings

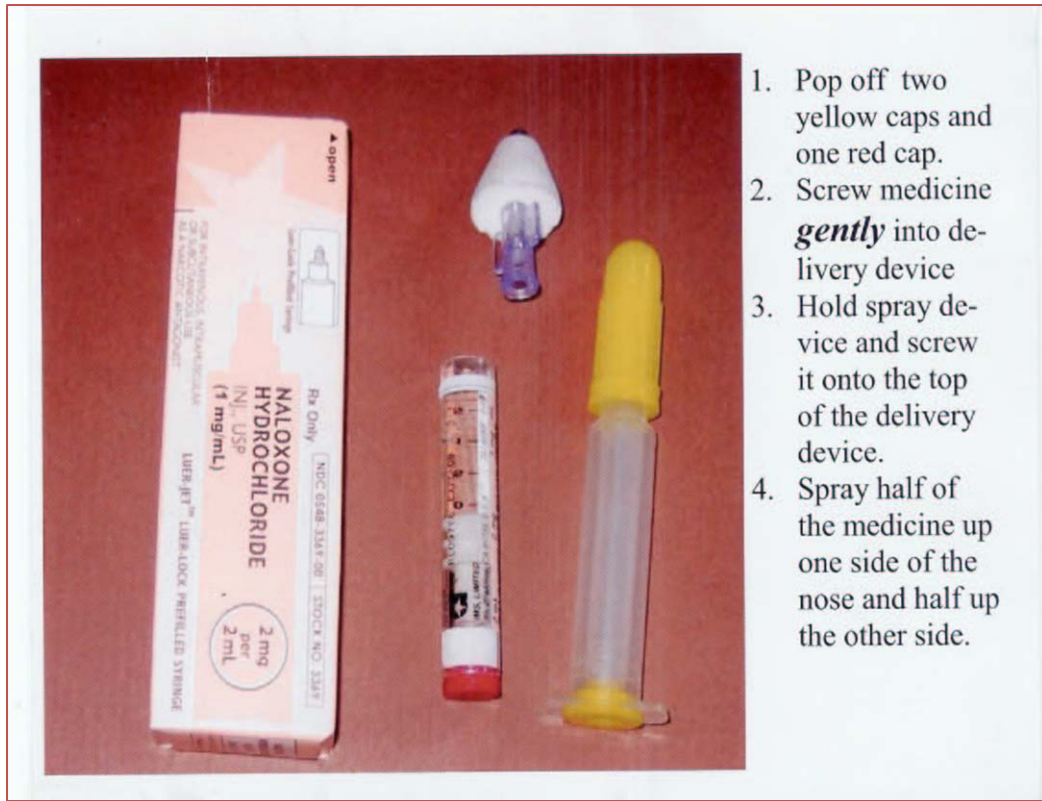
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Goals

1. Overview of naloxone for bystander use
2. High-risk times for overdose mortality
 - Risk of overdose death after release from prisons
 - Acceptability of naloxone among former inmates
3. Targeting naloxone distribution to other high-risk times, populations and settings based on epidemiologic data

Overview of naloxone for bystander use



Kit for intranasal dispensing
Photo courtesy of A. Walley

Naloxone for bystander administration: Rationale

- Prevent complications of overdose through earlier treatment or when fear of police inhibits calling 911 at all
- Complications include morbidity, high cost health services, death
 - anoxic brain injury
 - aspiration pneumonia
 - hospitalization
- Distributed with education on identifying overdoses, administration, need to call 911, and rescue breathing
- 911 Good Samaritan laws: immunity to bystanders who witness an overdose and call emergency medical services

Wheeler et al., MMWR 2012; Albert et al., Pain Med 2011; Baca et al., Addiction 2005; Wakeman et al., J Addictive Dis., 2009



Evaluations of naloxone distribution programs show promise

1. Feasible
2. Increased knowledge and skills
3. No increase in use
4. Increased drug treatment
5. Reduction in overdose fatalities in some communities

Enteen et al. J Urban Health 2010; Doe-Simkins et al. AJPH 2009;
Piper et al. Subst Use Misuse 2008; Wagner et al. Int J Drug Policy
2010; Tobin et al. Int J Drug Policy 2009; Green et al. Addiction 2008;
Seal et al. J Urban Health 2005; Maxwell et al. J Addict Dis 2006

Naloxone as part of comprehensive strategy to reduce overdose

1. Prescription monitoring programs
2. Prescription drug take back events
3. Safe opioid prescribing education
4. Expansion of opioid agonist treatment
5. Safe injection facilities
6. Safe storage of prescription opioids

Paulozzi et al. Pain Medicine 2011; Albert et al. Pain Medicine 2011; Marshall et al. Lancet 2011

High-risk times for opioid overdose



Photos courtesy of A. Walley

International studies suggest high risk of drug related deaths in former inmates

Author	Location	Population	RR/SMR*
Bird SM, 2003	Scotland	Male 15-24 y/o released after 14 d incarceration	Drug-related deaths in first 2 weeks compared to other 2 week periods: RR 7.4
Verger P, 2003	France	Male former prisoners <55 y/o compared with general population	SMR 3.5-10.6
Hobbs M, 2006	Western Australia	Former prisoners compared with general population	SMR 1.5-4.6

*RR=Relative Risk SMR=Standardized mortality ratio

Former inmates at high risk for overdose death after release

Study Design

- Retrospective cohort study 1999-2003
- Study being updated for 2004-2009
- Risk factor data from nested case control study (N=868)

Population

- Released inmates from Washington State Department of Corrections (N=30,257)

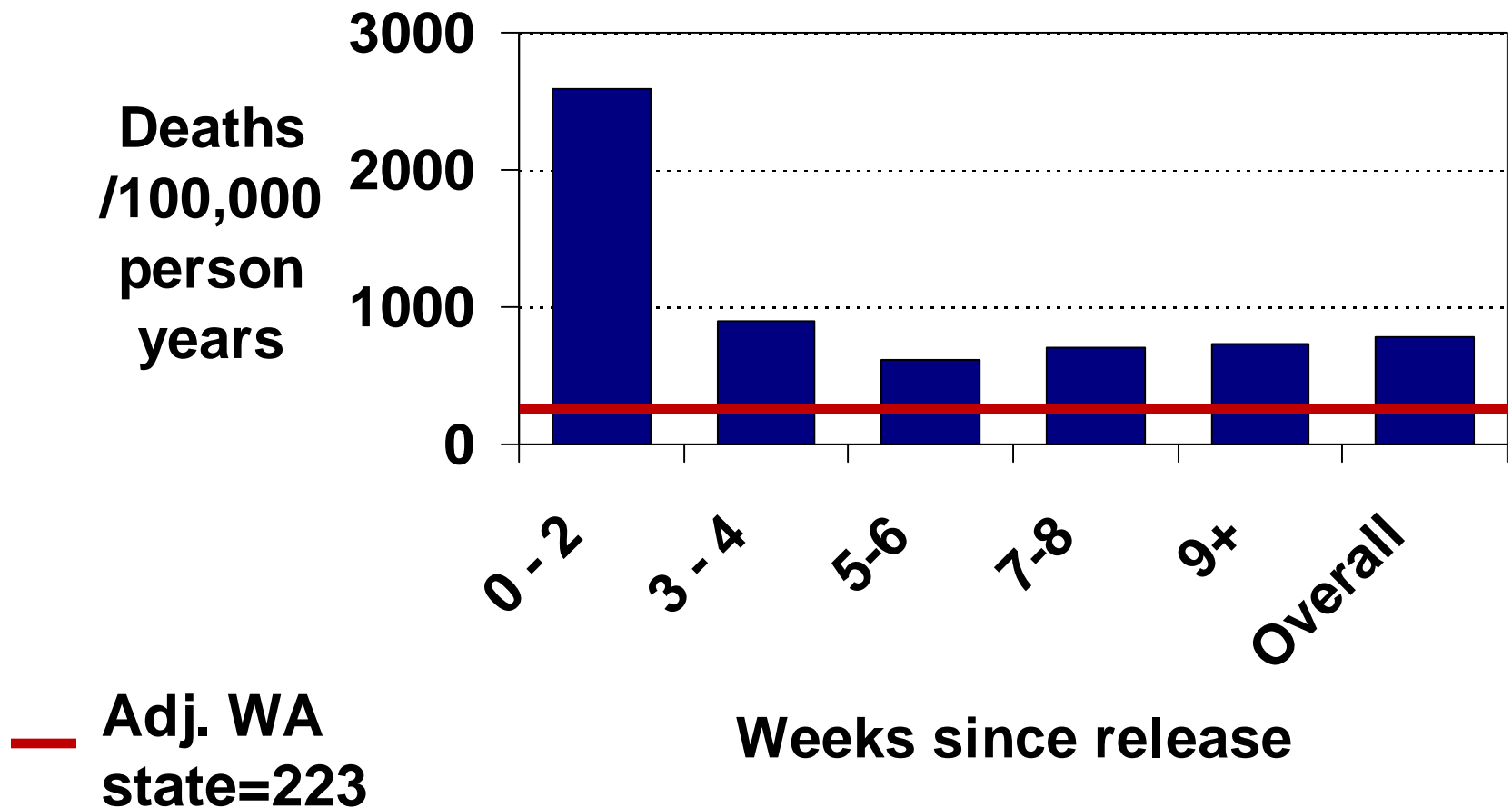
Data linkage

- National Death Index to establish deaths, causes of death

Comparison data

- CDC Wonder

Elevated mortality rates in first 2 weeks after release (N=30,257)



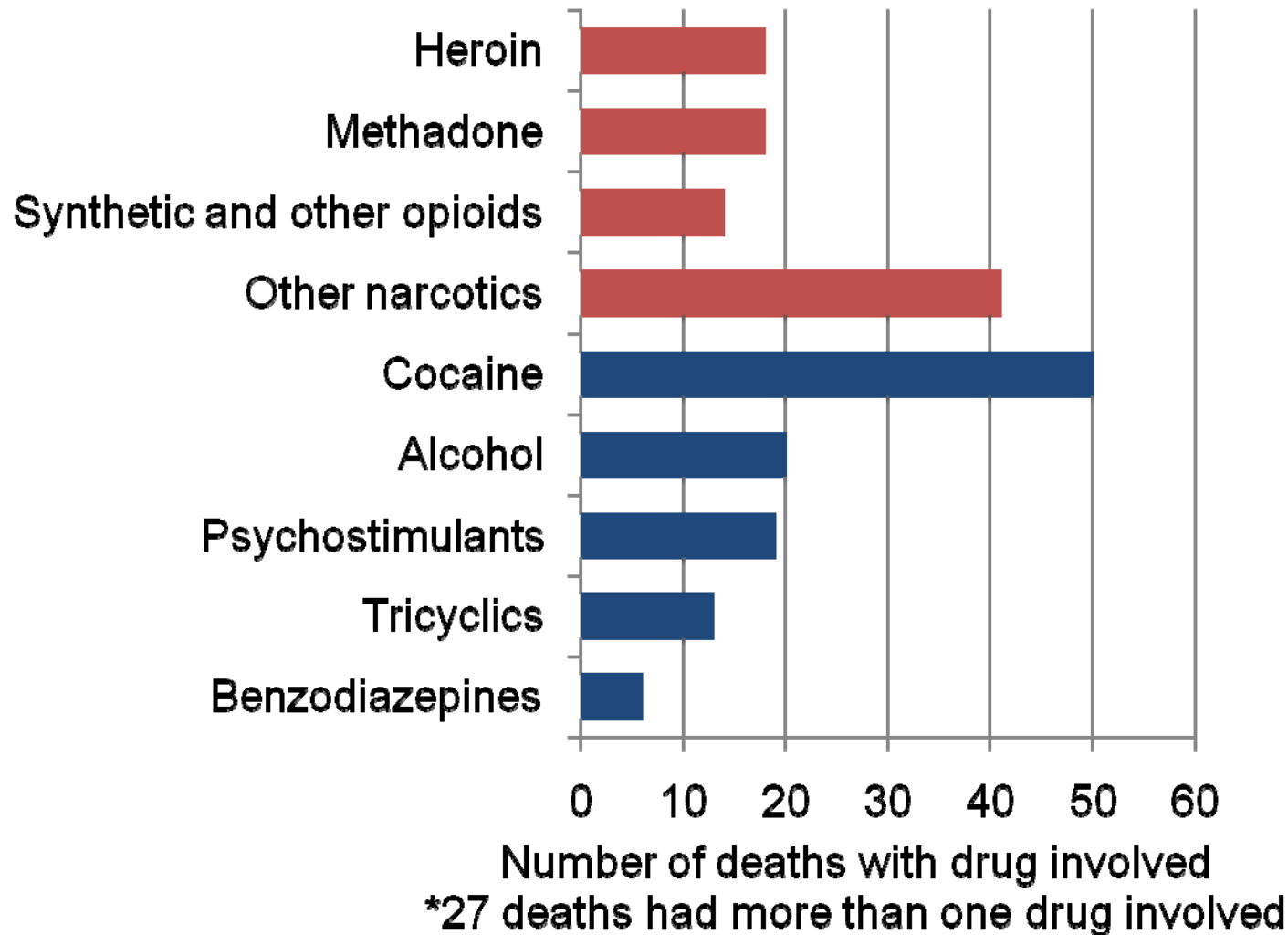
Leading causes of death after release: 443 deaths

	No.	Relative Risk*
Drug overdose*	103	12.2
CV disease	57	2.1
Homicide	55	10.4
Suicide	41	3.4

Compared to other state residents, adjusted for age,
sex, and race

*Unintentional poisoning

1999-2003: 103 former inmates died of overdose



Injection drug use is strongest risk factor for overdose death: Preliminary results

Documented history of injection drug use in prison medical and substance abuse charts

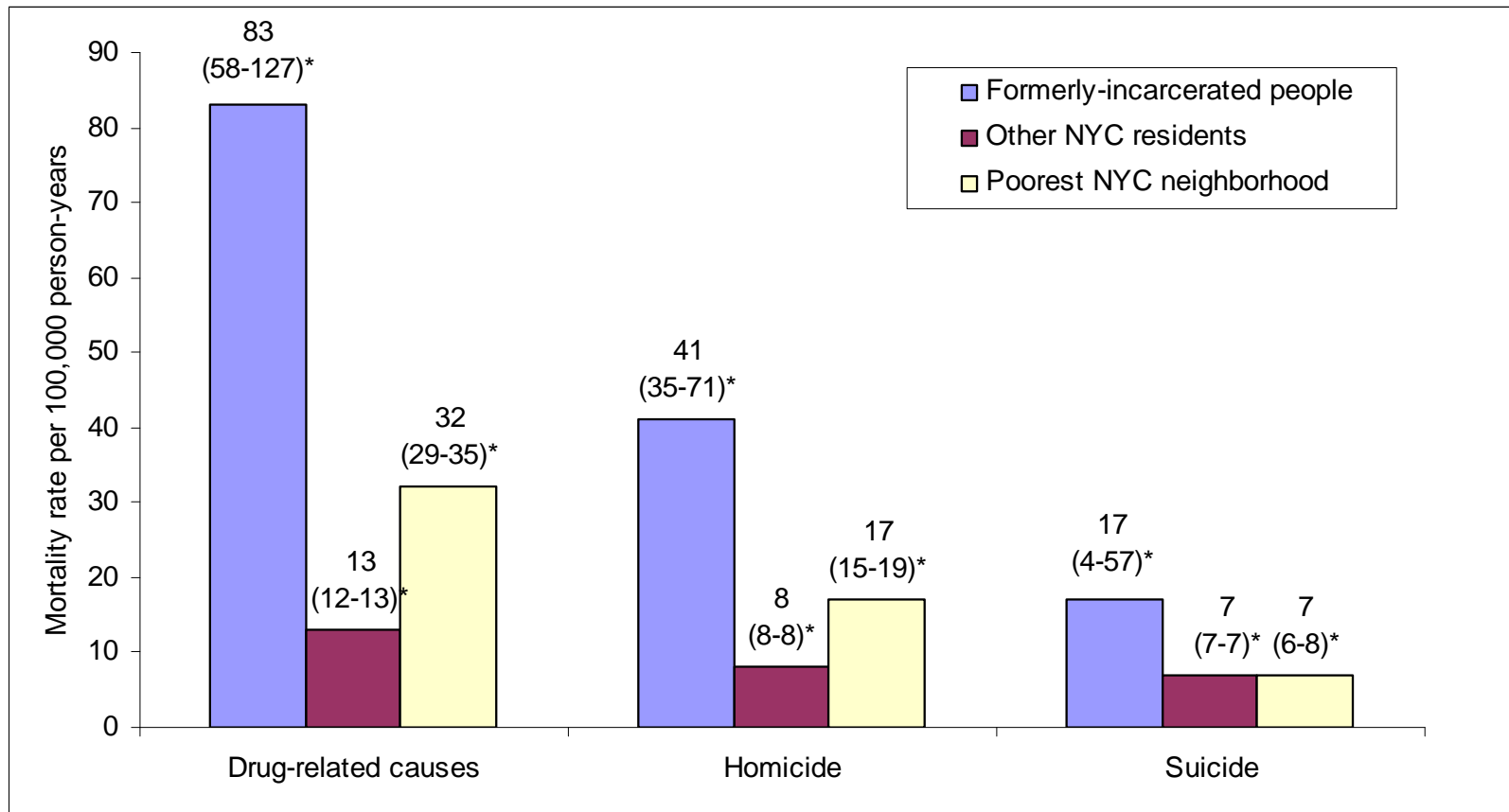
- 48% of cases (deaths)
- 34% of controls
- Adjusted odds ratio 7.2 (95% CI 2.9, 18.1) for overdose death

Opioid prescription in prison in 60 days before release not associated with overdose death

The scope of the U.S. criminal justice system

Term	Description	Year end population, 2009	“Handled” per year, 2009
Prison	State and Federal, convicted inmates serving >1 year sentence	1.5 million	2.3 million
Jail	County & city, detention after arrest or serving a sentence of <1 year	0.8 million	13.6 million

Former jail inmates also at high risk for overdose death, NYC 2001-2005



Acceptability of naloxone among former inmates

Study design

- Prospective cohort study
- 2011-2012

Population

- 200 former prison inmates released from prison in last 7-21 days to Denver area
- Recruited from community sites and correctional programs

Former inmate characteristics: Preliminary Results

Characteristics (N=200)	%
Female	25%
Mean age	41.1
Race/Ethnicity	
African American	38%
White	34%
Latino	23%
American Indian	4%
Asian	1%
History of Emergency Dept. visit for overdose	32%
History of injection drug use	44%
HIV	10%

Acceptability of naloxone among former inmates: Preliminary Results

Interview results (N=200)	%
Ever witnessed a heroin overdose, whether the person lived or not	46%
At last witnessed overdose, someone called 911	54%
Willing to receive training to use Narcan for a witnessed overdose	86%
Willing to give Narcan if someone you injected with overdoses	90%
People leaving jails and prisons should be given Narcan	76%



High risk populations, times and settings: Perspective of former inmates

The last time I OD'd [overdosed] I was on parole. I did too much. I went back to my normal dosage, what I was doing before I went in and that didn't work... I wound up in intensive care 3 days later from a coma... I know that when you come out of DOC [Department of Corrections] your body is clean so... you need to be careful and know what you're doing... and you never know what you get.

Current efforts with criminal justice populations

- N-ALIVE trial in United Kingdom
 - Planned RCT to prevent deaths through distribution of naloxone in prison inmates
 - Recruitment not started
 - Implementation of prison naloxone program in Scotland
- Preventing Overdose and Naloxone Intervention (PONI) program in Rhode Island
- Drug Overdose Prevention and Education (DOPE) in San Francisco: Re-entry

Targeting naloxone distribution to other
high-risk times, populations and settings
based on epidemiologic data

Targeting naloxone distribution:

High risk times

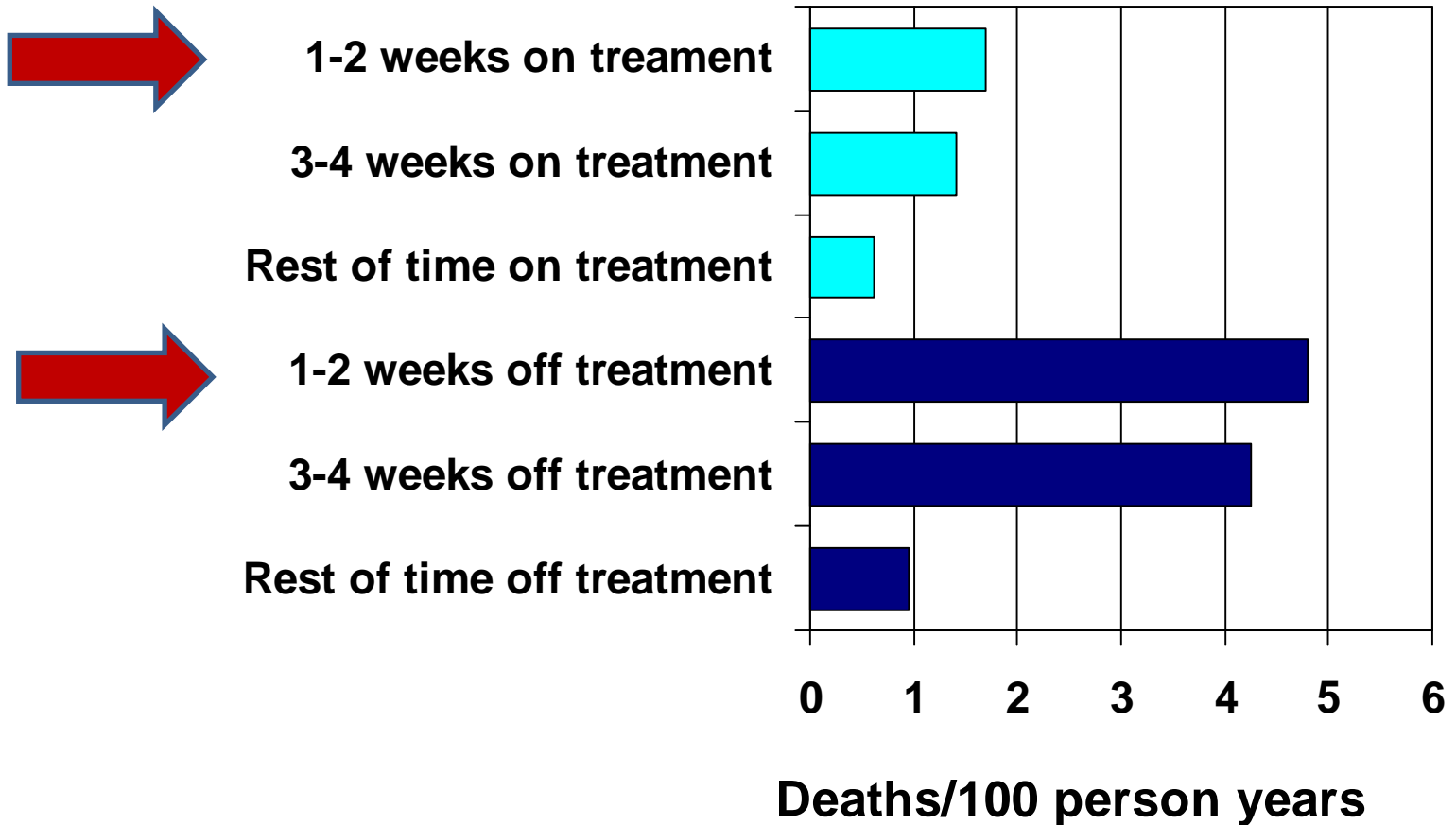
Transitions from relative abstinence to greater access

- Release from jail or prison to community settings
- Discharge from drug treatment or detoxification

Starting treatment with long acting opioids

- e.g. methadone or buprenorphine
- For drug treatment or pain management

Opioid substitution treatment in primary care, UK (N=5577)



Targeting naloxone distribution: High risk populations

- Criminal justice populations
- Drug treatment clients
- Prior overdose
- Injection drug users
- Homeless/unstable housing
- Difficulty accessing medical care (e.g. rural)
- Prescription opioid users: high dose, opioid naïve, concurrent sedating medications, alcohol users, co-morbid liver, respiratory disease

Strang, et al. BMJ, 2006; Wermeling, Pharmacotherapy 2010;
Albert et al., Pain Med, 2011; Cornish R et al. BMJ 2010;
Enteen et al., J Urban Health, 2010

Targeting naloxone distribution: High risk settings to consider

- Jails, prisons, parole
- Syringe exchange programs
- Community based organizations
- Public health departments
- Homeless shelters/Single room occupancy hotels
- Opioid replacement programs / detoxification centers
- Medical settings (to provide to patients)
- Emergency department
- Primary care settings

Naloxone prescriptions by primary care providers?

- Could allow access to some special populations
- Reach people who do not identify as drug users
- Insurance billing may overcome some cost barriers
- Analogous to existing prescriptions by PCPs
 - Epinephrine for individuals with anaphylaxis
 - Glucagon for diabetics
- May encourage physician-patient discussion of risks of overdose

Conclusions

- Former inmates are an appropriate target population for overdose education and increased access to naloxone
- Naloxone highly acceptable to a high-risk population who would be likely to have it used on them or use it
- Epidemiologic data can guide the selection of key times, populations, and settings for increased naloxone access
- Further research is needed to guide implementation of naloxone distribution in appropriate settings

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